#poster

Industrial Talk

Source: UTM Speaker

UTM — UNIVERSITI TEKNOLOGI MALAYSIA
KERANA TUHAN UNTUK MANUSIA · UNIVERSITI TEKNOLOGI MALAYSIA

INDUSTRIAL REVOLUTION

Industry 2.0 — Mass Production, Assembly Line, Electricity
Industry 3.0 — Computer and Automation
Industry 1.0 — Mechanization, Water Power, Steam Power
Industry 4.0 — Cyber Physical Systems
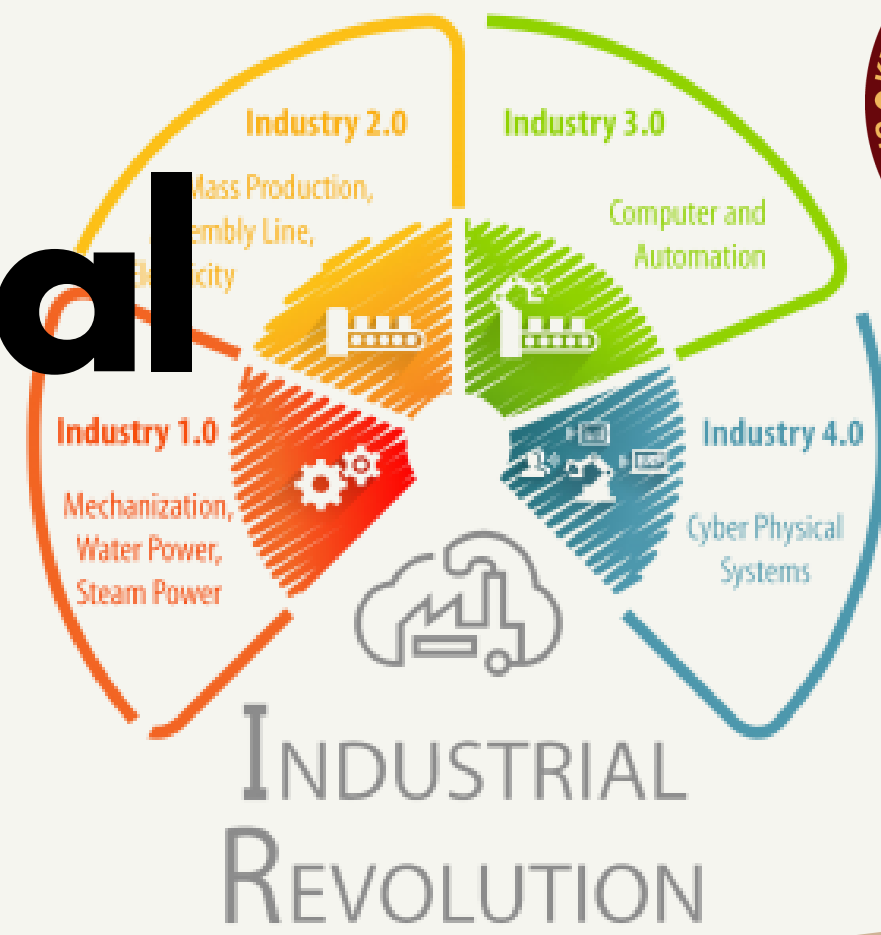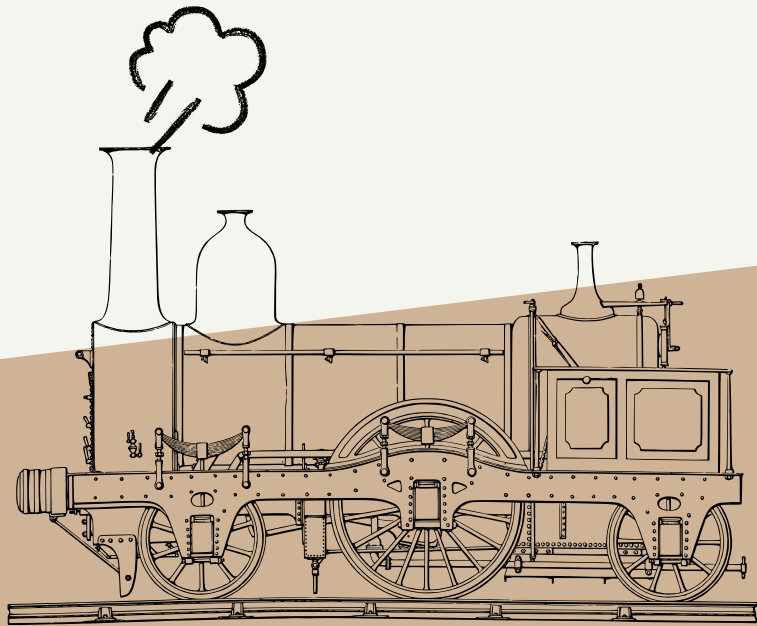
industrial revolution 4.0 - Bing images

Introduction

On 24 September 2020, from 10.00 to 12.00 A.M, our lecturer told us to have our first industrial talk with our speaker **Mr. Redzuan Shah bin Yusoff**, who is a director of the southern strategic Economic Region, Telekom Malaysia. Telekom Malaysia is a Malaysian telecommunications company founded in 1984. And our moderator is Nik kamal Izuddin Bin Nik Ibrahim, who is working as Head of section Division of Digital Architecture UTM DIGITAL. We are talking about the industrial era from the past, present, and future. He told us how, from each era of the industry there has been a lot of change in how people used technology.

Details of Journey

The speaker gave us an example of an era of industrial 1.0 and gave us a picture of a steam engine train. The steam engine train is one of the creations from the era of industrial 1.0. Many people in that era appreciated mechanical power and used mechanical power to derive the steam engine. He then proceeds to talk about the next industrial revolution, the birth of electricity in the late 19th century, which is the industrial revolution 2.0. This is the area where it started the mass production of goods and materials and the emergence of factories with assembly lines with the invention of machines that can be distributed worldwide in a mass amount. Then, the speaker He talks about the next industrial revolution, 3.0. He presents this era by showing two of the founding fathers (Steve Jobs and Steve Wozniak) of one of Apple's biggest key tech companies today. This is the era of the birth of computing with the first PLC, microcontroller and this era is also often referred to as the digital revolution with I.T being the key rivals in the industry. then moving on to the present in the 21st century with the industrial revolution 4.0. Basically, this is the era of the birth of artificial intelligence(A.I). This is the era in which all the previous eras' elements come together and start to explore artificial intelligence mechanisms. And there are nine key components to industrial revolution 4.0

Industrial 4.0

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1.System Integration
Many systems are highly automated within their own operation, but struggle to communicate with other systems. Standards and open architecture support the easy transfer of information, both to the business and the customer and/or end user. This can involve defining common languages for data exchange such as JDF for job information, CxF for color information, and PDF for content.

2.Big Data and Analytics
As systems become increasingly digitized and connected, there is a great deal of data that can be collected and analyzed. One of the challenges is the quantity of data. Too much data makes it difficult to identify the relevant information and trends that can lead to intelligent and automated decisions. This is where "big" data and analytics come in. Big data and analytics make it possible to identify the performance of an individual component and its operating restrictions in order to prevent future production issues and take preventative action.

3.Simulation and Virtualization
The simulation and virtualization of systems allow for different scenarios to be assessed. Once systems are assessed, cost-effective solutions can be developed, tested, and implemented much faster, ultimately leading to reduced costs and time to market. An example of simulation would be color management and control, where in-line measurements can be used to minimize set up times and optimize subsequent press runs.

4.Internet of Things
The IoT is a key functionality in Industry 4.0 driven solutions. The IoT combines physical devices via the network to collect data for the decision making process. This embedded computing enhances the value and functionality of the product being manufactured.

5.The Cloud
This will give you a lot of stability, flexibility and better computing power. Further information could be found on the slide below

6.Cybersecurity
As we move away from closed systems (with the increased connectivity from the IoT and Cloud), the security of information becomes paramount. Security and reliability enable the successful implementation of a truly modern and digitized production workflow, leveraging all of the benefits of a connected environment.

7.Autonomous Robot
It helps to reduce errors in productions and improves cycle time, and we could see a lot of factories are adopting these kinds of autonomous robots, for example, BMW and Toyota. The picture below shows further information on Autonomous robots.

8.Augmented Reality
Augmented reality grows in use by providing real-time information in an effective manner to allow humans to better integrate and interact with electronic systems. Examples can include the transmission of information on repairs for a part that can be viewed through different devices or the training of personnel using simulations and 3D views of the facility or equipment.

9.Additive Manufacturing
This continues to become increasingly important for small-batch applications or for the production of individual parts or personalized products. This will be used either directly with the customer or by suppliers to improve designs with increased performance, flexibility, and cost effectiveness.

Cybersecurity · Augmented · Cloud Computing · Big Data · Integration · Robots

9 key of components industrial 4.0 - Bing images

Reflection

The talk with Mr Redzuan Shah bin Yusoff is terrific. He opened our mind as to what the industry is heading towards and what we, as a student, need to prepare for. It is also fascinating how Mr Redzuan, an executive, shared Telekom Malaysia ongoing affairs with us and insights into what the industry is working on. It also inspires us to be successful and aware of the skill that we need to develop in the future. Mr Redzuan especially highlights how vital technology is in our lives soon. He proved this statement by showing us how technology developed from the birth of the steam engine or mechanical era. Nowadays, we use digital technologies in every aspect of our lives, whether it be health-care until entertainment. Having no affinity towards any of these skills will prove to be dangerous for our future. He also highlights that we need to focus on our studies because our family puts a lot of hope in our self. All in all, this talk has been stunning, and as a student, we pledge to be at our utmost behaviour and will pursue or degree to the very best.